



US005901641A

**United States Patent** [19]  
**McNamara**

[11] **Patent Number:** **5,901,641**  
[45] **Date of Patent:** **May 11, 1999**

[54] **BAFFLE FOR DEEP FRYER HEAT EXCHANGER**

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[21] **Appl. No.:** **09/184,719**

[22] **Filed:** **Nov. 2, 1998**

[51] **Int. Cl.<sup>6</sup>** ..... **A47J 37/00; A47J 37/12**

[52] **U.S. Cl.** ..... **99/403; 99/330; 126/375; 126/391**

[58] **Field of Search** ..... **99/403, 337, 338, 99/325-334, 404-410; 126/378, 375, 92 AC, 92 R, 390-392, 357, 360 R; 210/167, DIG. 8; 165/109.1; 219/492, 497, 506, 508, 442, 483, 486, 510, 512; 340/589; 426/233, 231, 438, 519, 305, 808, 302; 431/326, 170**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

4,228,730	10/1980	Schindler et al.	99/407
4,372,980	2/1983	Luebke et al.	426/231
4,639,213	1/1987	Simpson	431/326
4,660,542	4/1987	Scherer	99/403
4,684,412	8/1987	Fritzsche	99/330 X
4,848,318	7/1989	Brewer	126/390
4,913,041	4/1990	Taber et al.	126/391
4,923,705	5/1990	Mottur et al.	426/438 X
5,185,168	2/1993	Takahashi	426/233
5,209,218	5/1993	Daneshvar et al.	99/403 X

5,417,202	5/1995	Cote	99/403 X
5,490,449	2/1996	Meister et al.	99/403
5,706,717	1/1998	Barner	99/330
5,746,195	5/1998	Codazzi et al.	126/391

**OTHER PUBLICATIONS**

"Gas Immersion Tubes for Deep Fat Fryers," *Research in Fundamentals of Immersion Tube Heating with Gas*, Research Bulletin No. 24, AGA Testing Labs, pp. 20-21 (1944).

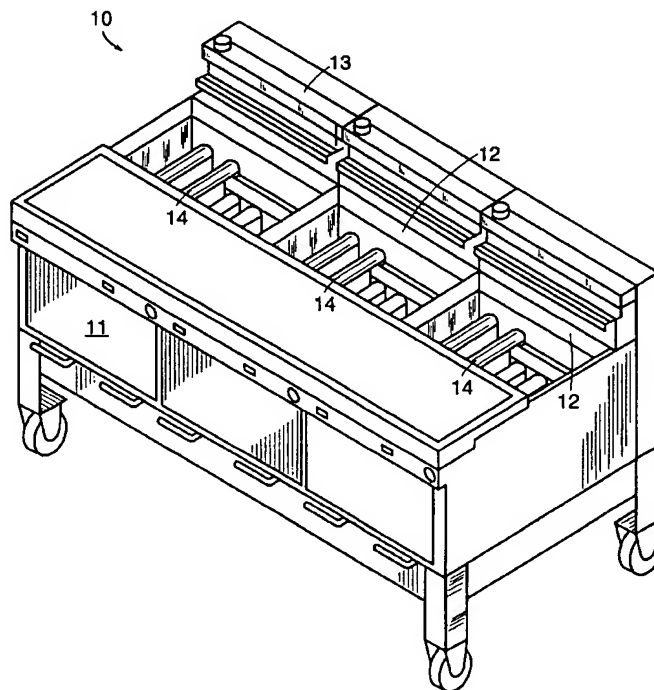
Fig. 13 from the *Ashrae Handbook, Fundamentals*, p. 3.16 (1993).

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[57] **ABSTRACT**

A heat exchanger for a fryer system has at least one heat transfer conduit having heating fluid passing therethrough. A baffle plate is disposed in the heat transfer conduit, defining a plane and having a first surface, an opposed second surface, and a longitudinal axis which divides the baffle plate into a first portion and a second portion. A plurality of tabs, each having a longitudinal axis, extend outwardly from the baffle plate. A crease is defined along the intersection of each tab and the plate. At least one tab is positioned in the first portion of the baffle plate and at least one tab is positioned in the second portion of the baffle plate. Webs separate adjacent tabs from one another in a direction substantially perpendicular to the longitudinal axis of the tabs. In certain embodiments, the crease of at least one tab forms an acute angle with a longitudinal edge of the baffle plate.

**25 Claims, 6 Drawing Sheets**



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